CLAIMS

1. A method of preparing a thermal and/or acoustic insulation material based on dried precipitated silica, comprising the steps consisting in:

(A) filtering an aqueous dispersion D containing precipitated silica particles in a filter press, whereby a compacted filter cake is obtained; and then

(B) drying the filter cake in the compacted state as obtained after step (A).

2. The method as claimed in claim 1, characterized in that the filtering in the filter press of step (A) includes a compacting operation at a pressure of between 2 and 10 bar, preferably between 3 and 8 bar.

3. The method as claimed in claim 1 or 2, characterized in that step (A) comprises:

(A1) a filtration operation at moderate pressure; and then

(A2) a compacting operation carried out on the filter cake obtained at a pressure of between 2 and 10 bar, preferably between 3 and 8 bar.

4. The method as claimed in one of claims 1 to 3, characterized in that the compacted filter cake obtained after step (A) has a solids content of between 10 and 35% by weight, preferably between 20 and 30% by weight.

5. The method as claimed in any one of claims 1 to 4, characterized in that the aqueous dispersion D used in step (A) contains a precipitated silica which, once dried, has a BET specific surface area of between 80 and 400 m^2/g and a CTAB specific surface area of between 80 and 350 m^2/g.

6. The method as claimed in any one of claims 1 to 5, characterized in that the aqueous dispersion D used in step (A) further contains a reinforcing filler.

7. The method as claimed in claim 6, characterized in that said reinforcing filler contains reinforcing fibers chosen from the group formed by aluminum silicate fibers, alumina fibers, mineral wool fibers, glass fibers, quartz fibers, ceramic fibers, polymer fibers and cellulose fibers.

8. The method as claimed in claim 6 or claim 7, characterized in that the (silica/reinforcing filler) mass ratio within the aqueous dispersion D is between 75/25 and 99/1 by weight.

9. The method as claimed in any one of claims 1 to 8, characterized in that the aqueous dispersion D used in step (A) further contains an opacifying agent capable of reflecting, absorbing and/or dispersing at least part of the infrared radiation.

10. The method as claimed in claim 9, characterized in that the opacifying agent is chosen from the group consisting of chromium oxide, zirconium oxide, iron oxide, titanium dioxide, manganese dioxide, ilmenite, quartz powder, silicon carbide, boron carbide, tantalum carbide, carbon black and graphite, titanium dioxide being preferred.

11. The method as claimed in claim 9 or as claimed in claim 10, characterized in that the (silica/opacifying agent) mass ration is between 50/50 and 99/1 within the aqueous dispersion D.

12. The method as claimed in any one of claims 1 to 11, characterized in that step (B) is carried out by

allowing the compacted filter cake obtained after step (A) to dry at a temperature of between 10 and 30°C.

13. The method as claimed in any one of claims 1 to 12, characterized in that step (B) is carried out by subjecting the compacted filter cake as obtained after step (A) to a progressive temperature rise from room temperature up to a temperature of at least 100°C, at a rate of temperature rise of less than 2°C per minute, preferably with the temperature being held at one, two or more intermediate temperature levels.

14. A porous thermal and/or acoustic insulation material based on dried precipitated silica, obtainable by the method of any one of claims 1 to 13.

15. The material as claimed in claim 14, characterized in that it takes the form of a panel of rectangular or square shape.

16. The material as claimed in claim 14 or as claimed in claim 15, in which the pore volume of the pores smaller in size than 1000 nm represents at least 40%, and preferably at least 50%, of the total pore volume of the material.

17. The material as claimed in claim 15 or 16, in which the pore volume of the pores smaller in size than 100 nm represents at least 50%, and preferably at least 60%, of the pore volume of the pores smaller in size than 1000 nm.

18. The material as claimed in any one of claims 14 to 17, characterized in that it has a total pore volume of between 1 and 5 cm^3/g.

19. The material as claimed in any one of claims 14 to 18, characterized in that it has a pore volume of the pores smaller in size than 100 nm of at least 1 cm^3/g.

20. A thermal and/or acoustic insulation material based on dried precipitated silica, which further includes a reinforcing filler, obtainable by the method of any one of claims 6 to 8.

21. The material as claimed in claim 19, characterized in that it comprises:

- from 75 to 99% by weight of dry silica; and
- from 1 to 25% by weight of reinforcing filler.

22. A thermal and/or acoustic insulation material based on dried precipitated silica, which further includes an opacifying agent, obtainable by the method of any one of claims 9 to 11.

23. The material as claimed in claim 22, characterized in that it comprises:

- from 50 to 90% by weight of dry silica;
- from 9 to 50% by weight of opacifying agent; and
- from 0 to 15% by weight of reinforcing filler.

24. The use of a material as claimed in any one of claims 14 to 22 as a thermal or acoustic insulation panel.

25. The use of a material as claimed in any one of claims 14 to 22 as a thermal insulation panel at reduced pressure.

26. The use of a material as claimed in claim 19 or 20 as thermal and acoustic insulation material for walls or ceilings of buildings or dwellings, or as a fire-stop material.

27. A use of a material as claimed in claim 21 or 22 as high-temperature insulation materials, in particular for insulating an enclosure heated to high temperature, or as constituent material of a fire-stop barrier.